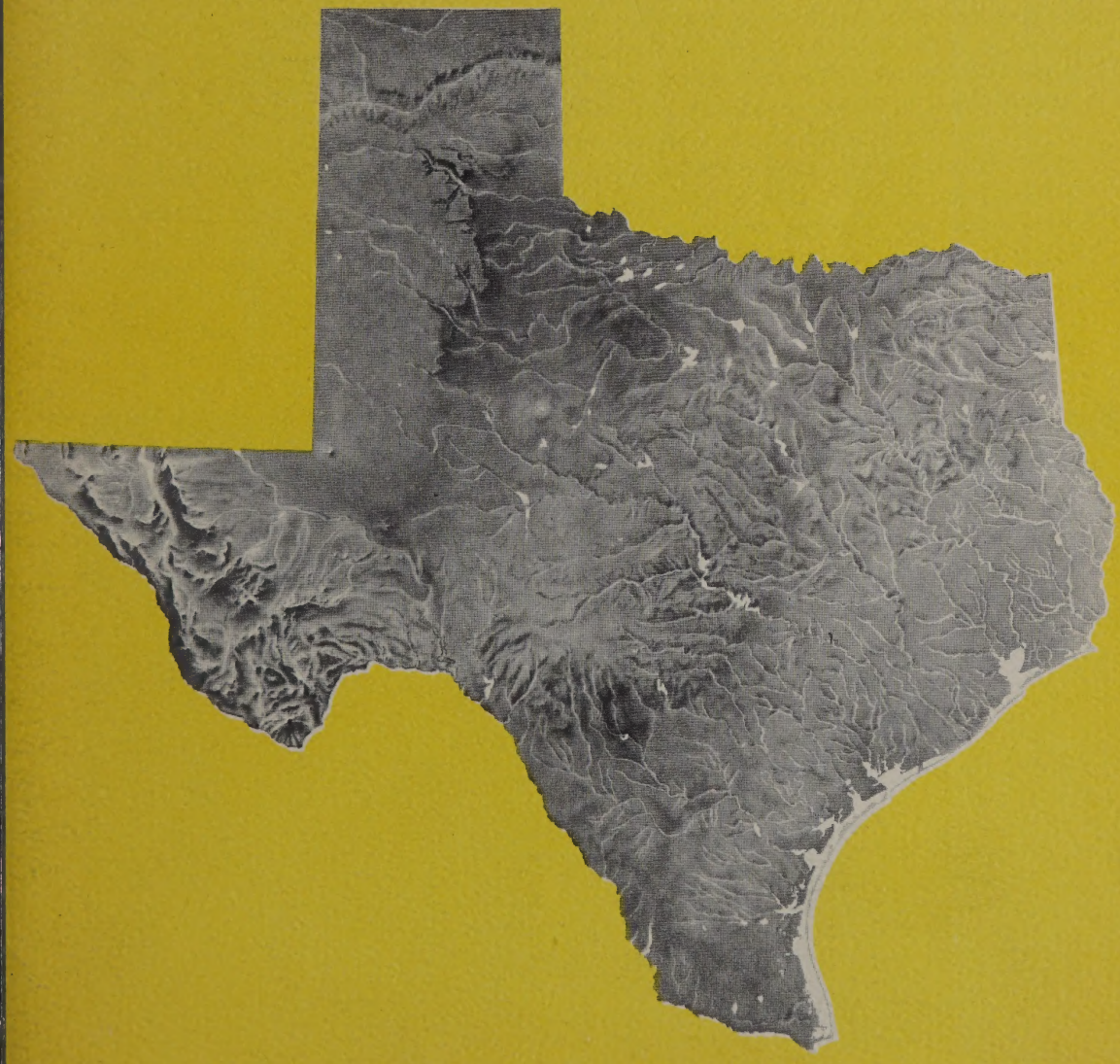
78.06

March, 1956

TEXAS Highways



650 MILES ABOVE TEXAS...

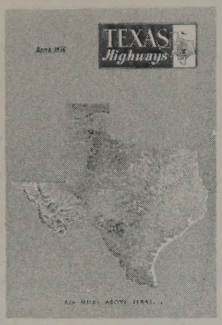
Do You Know Texas ?

Two lost battles were as decisive in the winning of Texas' independence as the victory at San Jacinto. It was the Goliad massacre and the fall of the Alamo that sparked the final short battle; these filled men's hearts with the vengeance that was necessary if this band of poorly trained and poorly equipped settlers were to overcome a superior, larger Mexican army.

About three weeks after the fall of the Alamo had aroused and partially united the Texas settlers, the Mexican guns sounded again at Goliad. On the morning of March 19, Colonel James W. Fannin had started his retreat from Goliad to Victoria and was overtaken by a Mexican force not far from Coleto Creek. Fannin's men managed to hold the Mexicans off that day but the next morning they found themselves far outnumbered without hope for victory or escape. Surrendering their arms, the men became prisoners of war "at the disposal of the Supreme Mexican Government," one of the Mexican majors assuring them they would be going home in eight days. On March 27, Palm Sunday, the prisoners were marched from the presidio at Goliad in three divisions. Many of them believed they were on the way home. At selected spots, they were halted and the guards fired upon them at a range too close to miss. Twenty-eight managed to escape from the slaughter; 342 died.

This Memorial Shaft at Goliad State Park is a monument to the victims of the massacre. It is erected on a continuous ring foundation circling the common grave. The names of the heroes are carved on the monoliths at either side of the shaft.

About the Cover . . .



Texas as it appears 650 miles up will appear in color on the new 1956 Official Travel Map soon to be released. Contrary to most opinions that the state is nothing but wide open prairies, this relief shows up the hills of the central region and the eastern tip of the Rocky Mountains that make up the far western portion of the Lone Star State.

Vol. III

TABLE OF CONTENTS

No. 5

Right-of-Way Problems 2
R. A. Bossy
16 Tons 8
Charles W. Smith
Unusual Roadside Park 11
R. L. Faltinson
Locating Pipe Lines 15
Maurice L. Newton
Preservation of Survey Monuments 18
Robert W. Knox
The Districts Pass in Review 22
Short Course 27
Removing Paint or Aggregate Pavement Markings 28
Alton Vordenbaum
Sign Drying Rack 33
R. N. Jennings
Personnel Changes 34
H. L. Arno
No Shooting 35
J. C. Roberts
You Take the High Road 36
Must We Have Fake Traffic Laws? 38
Don Wharton
What's in a Name 42
Over the Highways 43
Comments From the Traveling Public

TEXAS Highways

The purpose of this publication, "Texas Highways," is to furnish a medium for presenting practical ideas and information. Employees are invited and urged to submit suggestions and relate experiences which would benefit or be of interest to Highway employees. These conclusions and data are not necessarily endorsed by the Highway Department nor are they to be construed as instructions.

Photographic services are available and other assistance may be obtained, if desired, in preparing material for submission. All material and comments should be directed to the Information and Statistics Division, Austin 14, Texas.

"Texas Highways" is published monthly by and for State Highway Employees for departmental use only. The use or reproduction of the material contained herein is prohibited without the expressed permission of the State Highway Engineer.

COMPILED AND EDITED
Information and Statistics Division

OUR LOCAL RIGHT-OF-WAY

R.A. Bossy, District Engineer
District 2

This article has been prepared in the hope that it may be of some value and assistance to others, and is only an attempt to write down the ideas, thoughts, and conclusions which have been gathered from others, and through limited experience in a few of the counties and cities of Texas.

As highway improvements have proceeded in Texas, provision of rights of way has changed from no problem at all to its present status of the major block to development of a sound program. Increased costs, resulting from greater widths needed and strip development along present routes, have resulted in delaying improvement of highest traffic sections of many highways, and the expenditure of construction funds on lesser needed sections where development is less and right of way less expensive.

The first reaction to this problem by many of the local officials of counties and cities has been that right-of-way acquisition should now be assumed by the State. Responsibility of local governmental units for participation in highway programs by provision of right of way has been basic state policy during development of the present highway system. Nationwide recognition of the progress made in improvement of Texas highways is the best testimonial to the soundness of that policy, and comparison with states who participate in right-of-way costs affirms the judgment of our administrators. Recent state-wide difficulties in accomplishing important improvements have occasioned much discussion of this problem, and proposals made for change of the state policy have developed an attitude of "wait and see" in many communities.

PROGRAMS

It has seemed in many cases that the Department's engineers and other representatives on the local level have contributed to slowing down right-of-way procurement by discussions of the possibility of State acquisition. Discussions with local officials as to the probability and wisdom of State acquisition of right of way are obviously fatal to promotion of a local right-of-way program.

There are sound and compelling reasons for local right-of-way programs which, if understood by the people, will generally lead to public support for their financing. Usually, however, the public is well ahead of its local officials in its desire for better traffic facilities and is willing to pay for rights of way. The principal problem is to get them organized, and to express themselves to their officials. The public generally is aware of the tremendous growth of automotive transportation, but is not informed of the importance it has assumed in our economy. Emphasis of this by statistics on traffic growth, and forecasts of vehicle registrations and traffic volumes on the local levels for five- and ten-year periods will help to focus public attention on their stake in this problem. The economy of early acquisition of rights of way adequate for future needs can be readily understood and accepted by the citizenship. Advance planning of major traffic facilities and acquisition of right of way for them will encourage and promote orderly property development and is essential to sound urban development. Haphazard subdivision development in urban areas without adequate traffic facilities is the plague of our cities today, and can only result in decreased property values should it continue. Adequate traffic facilities have become essential to maintenance of values for all types of properties.

The fact that Texas has for many years enjoyed an honest and efficient Highway Department, which has won the confidence and esteem of the people of Texas, may now be responsible to a large extent for the attitude of the public toward highway improvements. The citizenship is not generally informed as to the relationship of the local governmental units and the Highway Department in the development of highway improvements. It often is amazing to find the lack of understanding of leading citizens, who are confident that the Department will take care of needed highway improvements and feel they need have no concern with the problem.

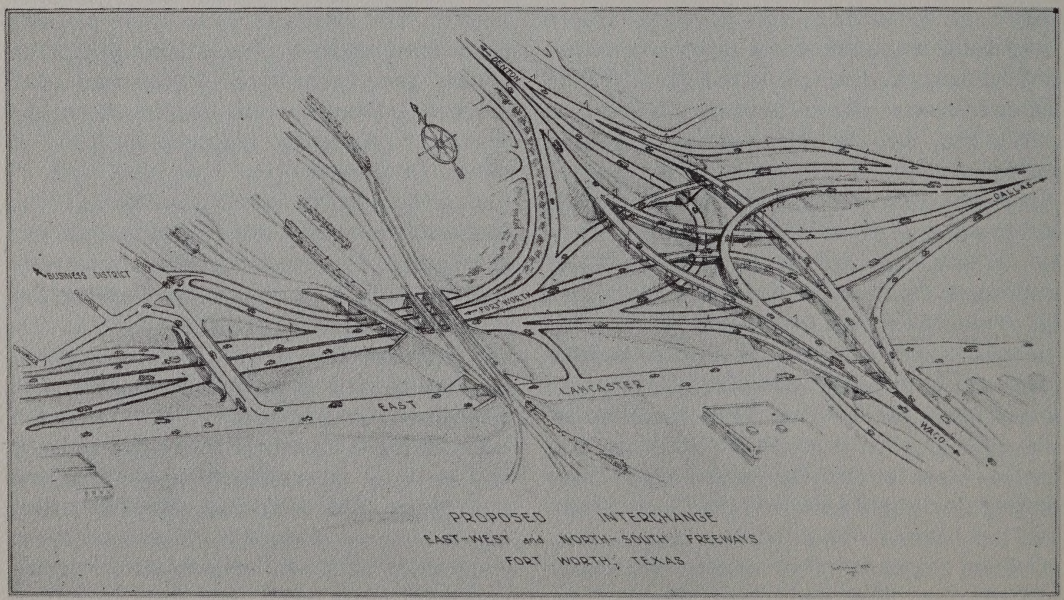
There seems to be a logical pattern of approach to the local promotion of a right-of-way program. It subdivides into three stages: First, the selling of the local governmental bodies, the county courts and city governments, on the need for the improvements. Generally they will readily recognize and admit the need, but quickly plead

no funds. Usually it is a serious mistake to try to bring pressure to bear from the citizenship, or anyone else, on the local officials to try to make them get out in front and advocate a right-of-way program. They cannot afford to propose a right-of-way program simply because it is recommended and desired by the Highway Department. Provision of right of way requires additional taxes and it is political suicide for local officials to advocate increased taxes. They must be allowed to assume the position of acceding to the demands of their citizens for local highway improvements to benefit their community. Usually elections are necessary, and they can say "let the people decide." However, it should be kept in mind that the support of the local officials and their political experience are essential to the success of any bond election.

Second, the local press should be convínced of the necessity and desirability of the program, and be ready to support it. Editorial support will govern the tone of news articles. It has been found that if engineers can overcome their natural distaste for publicity, and be willing to discuss proposals frankly with press representatives, they will be called upon more and more for information, and be in position to guide press attitude toward programs. However, one has to accept with good grace the garbled accounts which sometimes result, and never show displeasure to the press representatives. The detailed accuracy of any press report is much less important than the fact that it was reported, indicating its importance as news, and keeping in the public attention the proposal at hand.

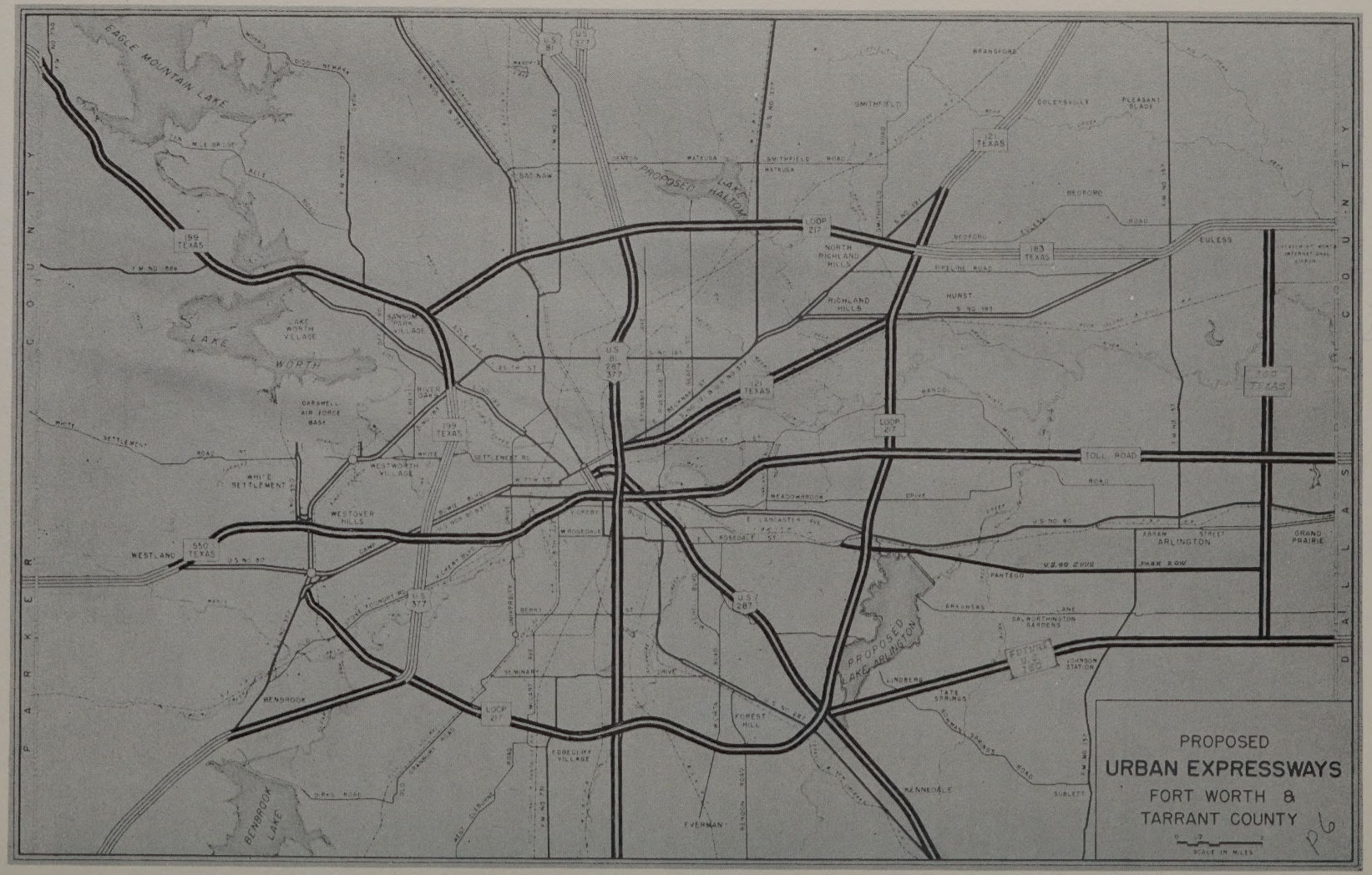
Then a citizens group must be formed to take the lead in advocating a program. It is important that the composition of this group be carefully studied and formed to overcome sectional jealousies and local controversies. It may be spearheaded by a Chamber of Commerce group assisted by other leading citizens in various areas of the county. Their job is to request of their local officials that a right-of-way program be considered by them and that the people be allowed to decide by vote whether or not they want the improvements and are willing to finance them.

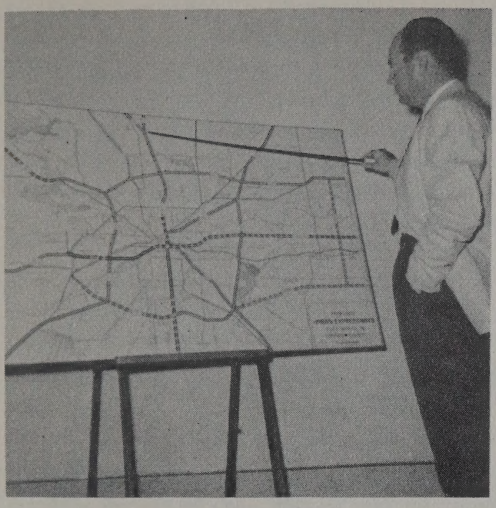
The third phase in promotion of the program is the dissemination of information and development of public understanding of the improvements to be provided by the program and the benefits to the community which will

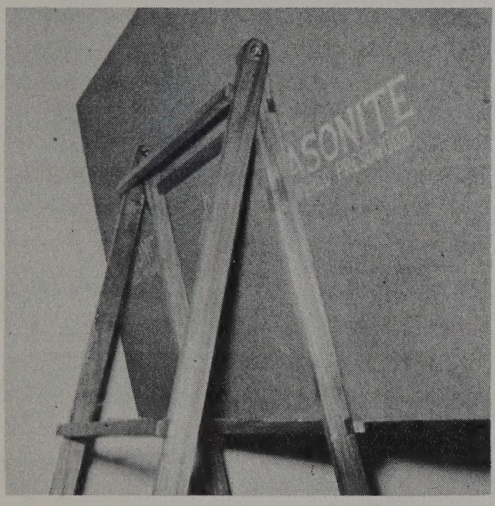


PROPOSED INTERCHANGE
EAST-WEST and NORTH-SOUTH FREEWAYS
FORT WORTH, TEXAS

EAGLE MOUNTAIN LAKE
PROPOSED LAKE BENTON
LAKE WORTH
PROPOSED LAKE ARLINGTON
BENBROOK LAKE
U.S. 81
U.S. 377
121 STATE
199 STATE
LOOP 217
183 STATE
U.S. 81 287 377
NEW ROUTE
TOLL ROAD
550 STATE
U.S. 287
PARKER COUNTY
DALLAS COUNTY
LEGEND
MILES
10.5 CONSTRUCTED
34.0 DEFINITE ARRANGEMENTS MADE FOR R.O.W. & CONSTRUCTION OR UNDER CONSTRUCTION
117.0 PROPOSED
FORT WORTH METROPOLITAN AREA
MAY 19, 1955
ENGINEER MANAGER


PROPOSED
URBAN EXPRESSWAYS
FORT WORTH &
TARRANT COUNTY
SCALE IN MILES
PROPOSED LAKE HALTOM
PROPOSED LAKE ARLINGTON
EAGLE MOUNTAIN LAKE
LAKE WORTH
BENBROOK LAKE
PARKER COUNTY
DALLAS COUNTY
LOOP 820
LOOP 217
LOOP 20
TOLL ROAD
FUTURE U.S. 180
199 TEXAS
183 TEXAS
121 TEXAS
360 TEXAS
U.S. 81
U.S. 377
U.S. 287
U.S. 80 ALT
U.S. NO. 80
FORT WORTH
ARLINGTON
GRAND PRAIRIE
EULESS
HURST
BEDFORD
NORTH RICHLAND HILLS
RICHLAND HILLS
WESTWORTH VILLAGE
WHITE SETTLEMENT
WESTOVER HILLS
WESTLAND
BENBROOK
FOREST HILL
EVERMAN
KENNEDALE
SUBLETT
PANTEGO
DALWORTHINGTON GARDENS
TATE SPRINGS
JOHNSON STATION
CARSWELL AIR FORCE BASE
SANSOM PARK VILLAGE
LAKE WORTH VILLAGE
EDGECLIFF VILLAGE
BRANSFORD
SMITHFIELD
COLEYSVILLE
PLEASANT GLADE
BENBROOK ROAD
PARK ROW
ARKANSAS LANE
MEADOWBROOK DRIVE
ROSEDALE ST.
E. LANCASTER AVE.
SEMINARY DRIVE
PIPELINE ROAD
BEDFORD EULESS ROAD
SMITHFIELD ROAD
WHITE SETTLEMENT RD.
JACKSBORO HWY.
RIVER OAKS BLVD.
CAMP BOWIE WEST BLVD.
TARRANT COUNTY JUNIOR COLLEGE
FORT WORTH MEMORIAL GOLF COURSE
FORT WORTH INTERNATIONAL AIRPORT





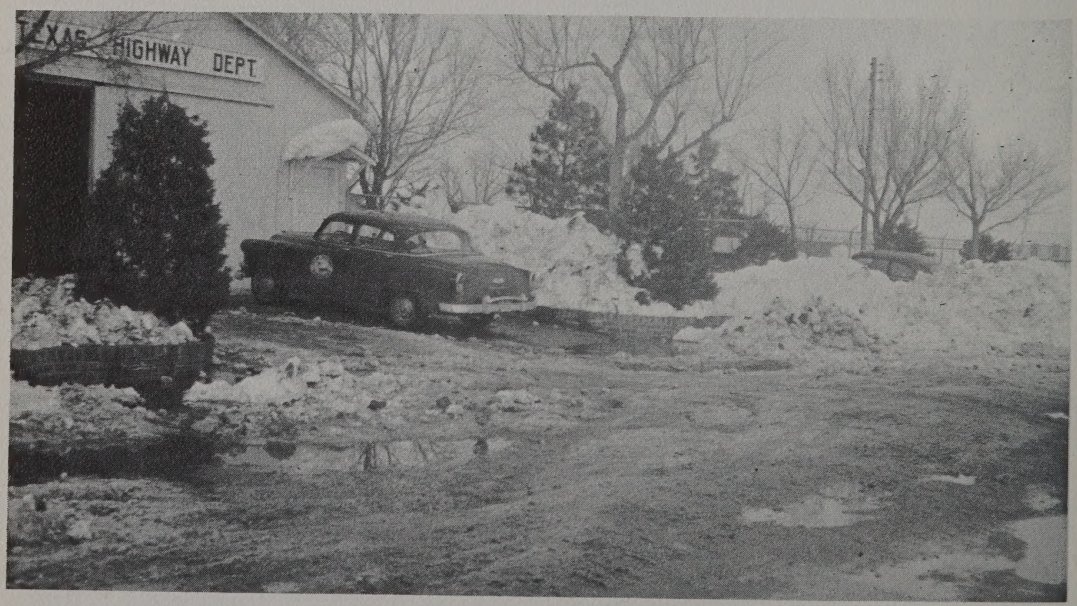
result. In this part of the activities the Department's representatives can and must be willing to participate; in fact should assume leadership by preparation of maps, booklets, artists drawings of proposed construction, facts and figures on traffic (present and future), and be ready and willing to answer questions relative to the program. Local service clubs afford a ready medium for discussions of the program, and press representatives may be invited and thus give distribution to the public. For talks to service clubs and other groups, the simplest and easiest approach has been found to be speaking from short outlines on cards, together with a large map and pointer. This eliminates practically all preparation, after the base is established, and permits extemporaneous variations to fit the group at hand. It is easy to make the mistake of assuming that the audience knows more about the relationships of the governmental agencies than they actually do, and it has been found desirable to explain the fundamental responsibilities of local, state, and federal agencies in talking to any group.

In urban areas, preparation of a base map showing only topographical features, railroads, parks, lakes, and principal traffic arteries, but leaving out most streets and other details is desirable, Usually suitable maps are not available. On this base map proposed highway routes can be shown. They should be bold and broad, preventing anyone from pinpointing the location in order to avoid minor controversies and to keep attention focused on the general plan. If this base map is prepared about plan sheet size (22 x 36) it can be reproduced double size for public use in talking to groups, and one-half size for many other uses. The illustrations show some of the material which has been used to attempt to develop a right-of-way program in Tarrant County.

On Wednesday, February 1, a snow storm hit the Panhandle area. By February 14 snow removal operations were still in progress. In fact, during this time snow removal operations were on a 24-hour basis beginning Friday, February 3, and extending through Sunday, February 12.

During this time of emergency all District personnel were on 24-hour call and several operators worked continuously for as much as 48 hours without rest. A letter was sent to all supervisory personnel in the District in which James G. Lott, District Engineer, expressed his appreciation for the loyalty and hard work of all personnel.

Charles W. Smith, Assistant District Engineer
District 4



Maintenance subwarehouse on U.S. 66 in Vega.

Snogo plow on U.S. 60 just west of Canyon, Randall County.

Residence on south side of F.M. 1058 (Harrison Highway) just west of Hereford, Deaf Smith County.

One-way traffic on F.M. 1058 just west of Hereford (opened by V-Plow on a Number 112 Caterpillar Maintainer).

V-Plow on a Number 112 Caterpillar Maintainer opening a blocked cut on F.M. 1058, about twelve miles west of Hereford.

UNUSUAL

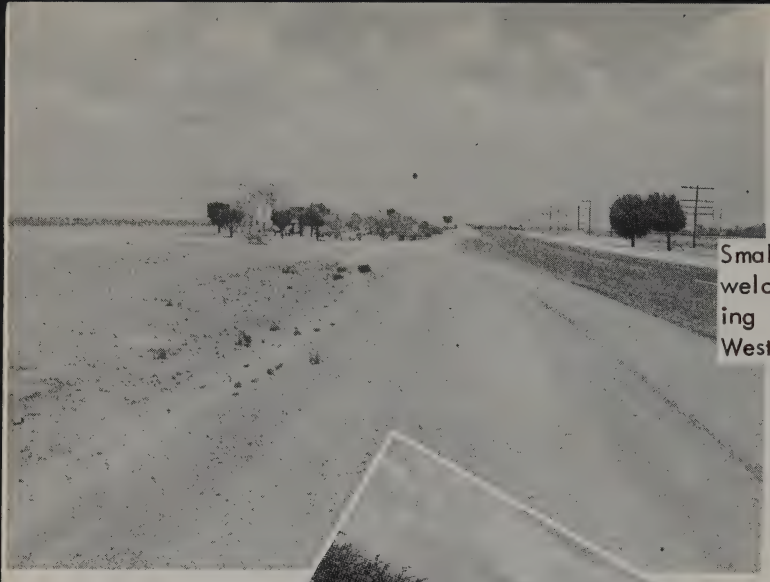
R.L. Faltinson, District Engineer
District 6

U.S. 80 from Midland east to the Howard County Line was reconstructed during 1955 to provide a four-lane divided facility, and for the first time in Texas, a complete roadside park was erected in the median. There has been a great deal of comment both for and against the location of the park. So far however, the arrangement is working very satisfactorily.

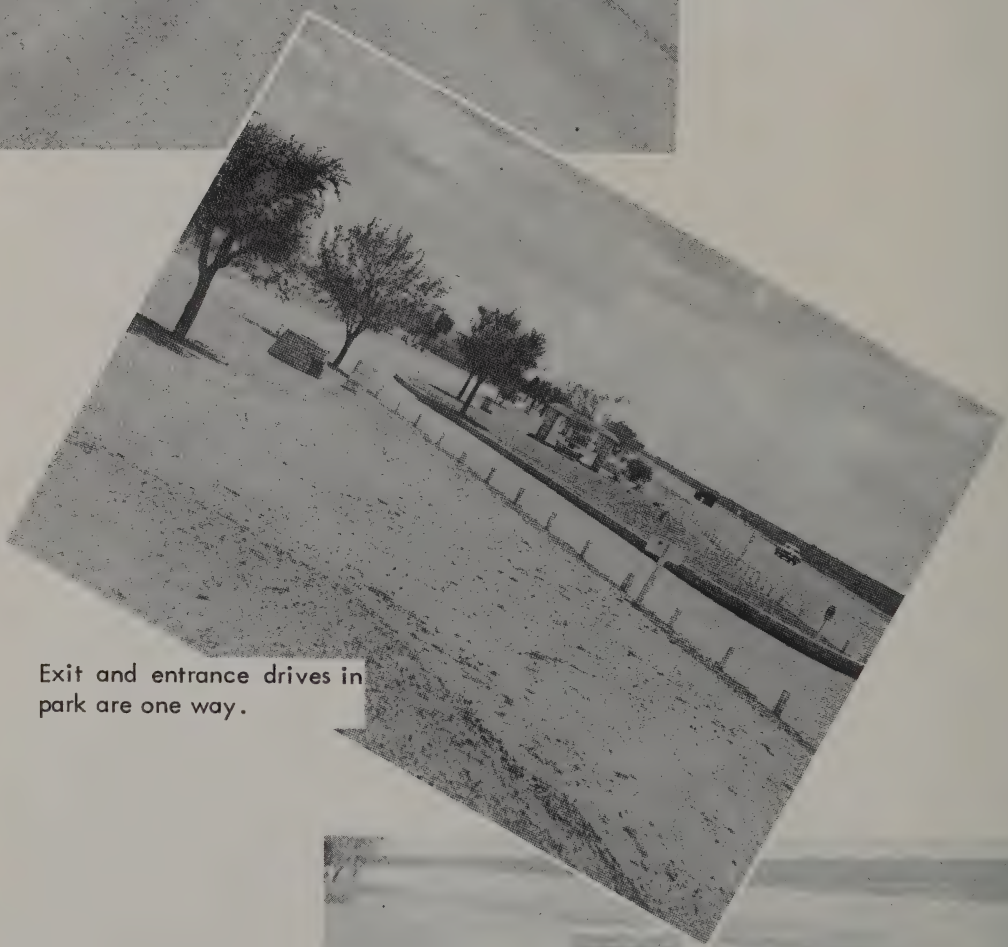
The park was first constructed in 1939, and was rehabilitated when the four-lane facility was constructed. This section of U.S. 80 was designed with the idea of retaining the existing park in the median—an idea supplied by employees of District 6. Remodeling work was done by the contractor.

The cost of the additional right of

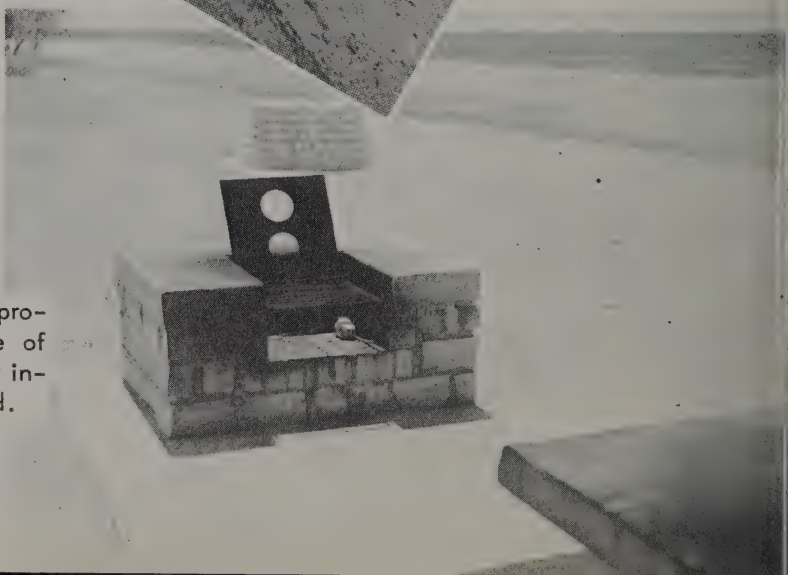
Aerial view of flat Midland countryside showing how U.S. 80 was designed to include a roadside park in the median strip.



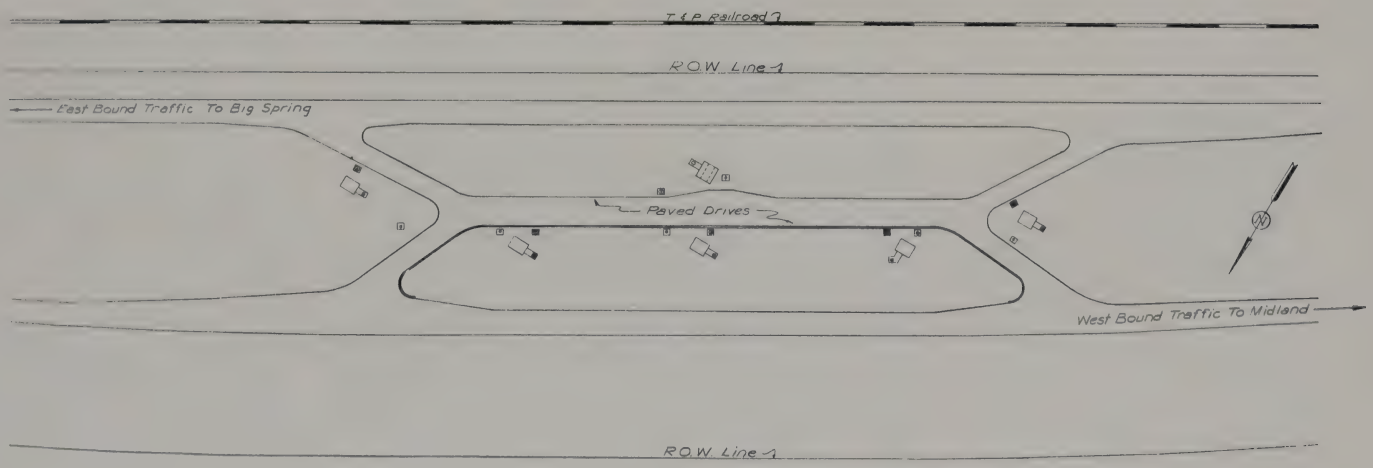
Small oasis of trees offers welcome to motorists traveling in the usually treeless West Texas Plains.



Exit and entrance drives in park are one way.



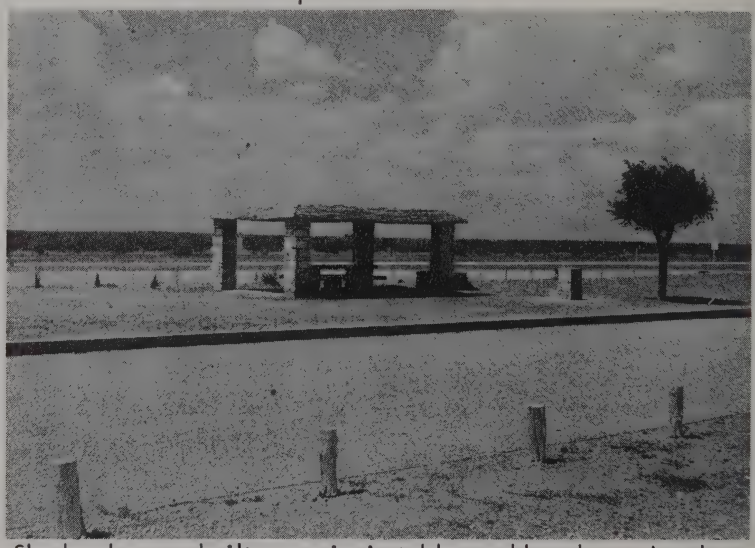
Neat barbecue pits are provided for convenience of picnickers with circular incinerators in background.



U.S. HWY 80
ROADSIDE PARK
LOCATED 5 MILES EAST OF MIDLAND
Scale 1"=50'

LEGEND
- ARBOR & FIREPLACE
- TABLES & BENCHES
- WATER FOUNTAIN
- INCINERATOR

Well put down in 1939 provides water for trees and shrubs, and also supplies drinking fountain. Firewood is also provided for barbecue pits.



Shade arbors are built over picnic tables and benches. Another fountain is at right of arbor.

way required was very small in this case. By using the existing park to serve both east- and west-bound traffic, the necessity for one new park was eliminated, and this saving more than offset the cost of additional right of way.

All shrubs and trees in the new park were planted in 1939 when the park was originally constructed, and are watered by a pipe distribution system from the windmill. This well also provides drinking water for motorists. If this roadside park proves satisfactory, we will probably construct additional parks in the median of U. S. 80 west of Monahans.

While we do not have any direct quotes from the traveling public, the general reaction, both from tourists and from the local people, has been very favorable. We have not had any criticism from the public about the location and design of the park.

Senior Resident Engineer G. T. Orenbaun of Midland was in charge of this project and W. O. Pelphrey was the contractor. W. E. Kelley and the Midland Chamber of Commerce furnished the photographs.

locating pipe lines

Maurice L. Newton, Chief Inspector
District 4

Being situated here in the Panhandle oil field, we of the Highway Department engineering forces are confronted with the problem of locating pipe lines and tracing down the owners so that these lines may be adjusted prior to any new construction work. I am sure that this problem exists throughout the state.

The following is the procedure now followed in this area.

1. The lines are located by a field party on preliminary survey. (This is an expensive operation, since most lines must be found by hand, digging with a pick and shovel or other crude methods, thereby consuming a great many man-hours per new construction site. This method very often fails, because it is nearly impossible to find all lines.)

2. Ownership of the lines is determined. (This is very often a problem.)

3. Locations of lines, sizes, and owners are placed on the right-of-way map which is furnished the county for procuring and clearing of the right of way. (Often the county secures the right of way, but does not take the time to notify oil and utilities companies about adjusting their lines, thereby causing the contractor undue delay and the state and the contractor a great deal of embarassment.)

The following is my suggested procedure as an answer to this problem.

1. Prepare a simple small-scale sketch of the section of road that is to be constructed.

2. Get a number of prints made of the sketch.

3. Prepare a form letter similar to the one that is attached.

4. Submit these forms along with the prints of the sketch and right-of-way map to the county and ask the County Judge to mail a copy of the letter and sketch to all known oil and utilities companies operating within the area.

This procedure should save the state and county a sizable amount of money and be a much more efficient method for handling this problem.

FORM LETTER

_____
Oil or Utility Company

_____
City State

Gentlemen:

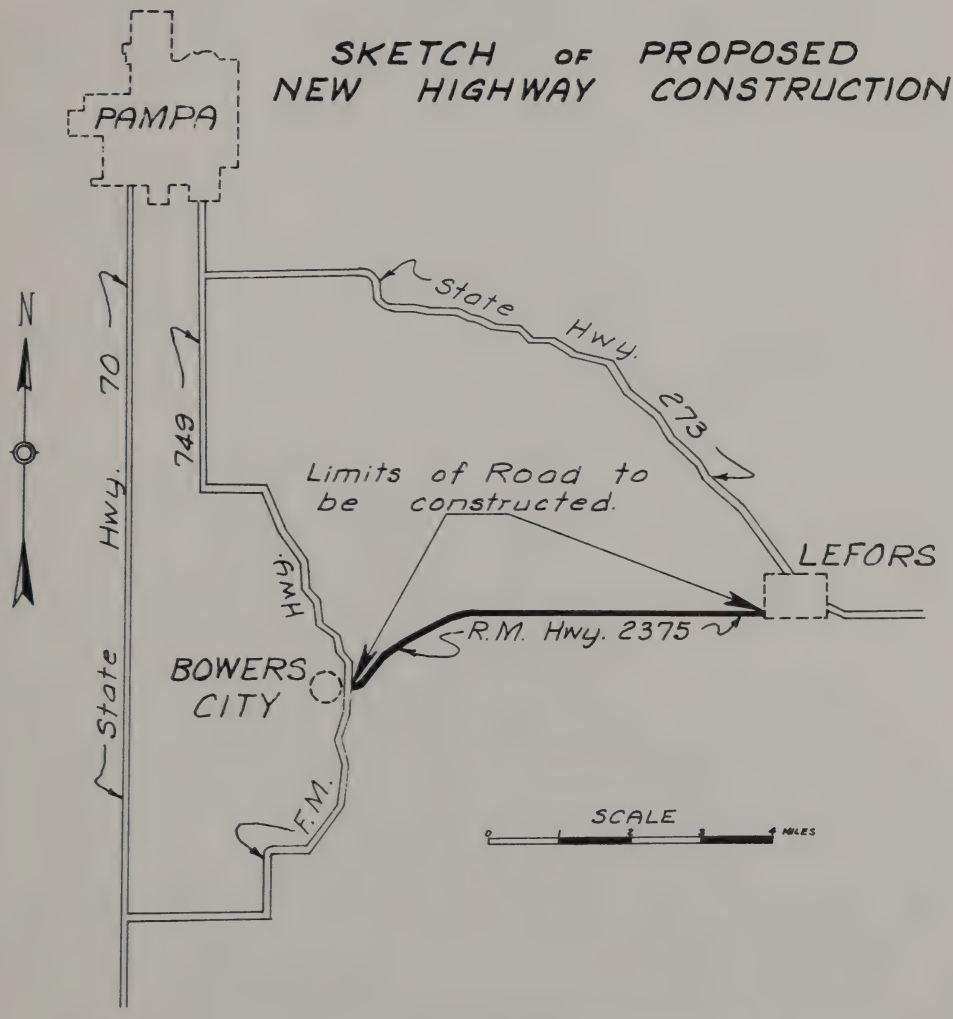
In the near future, the State Highway Department in cooperation with _____County will construct a new highway as indicated on the enclosed sketch.

In the event that you have a line or lines that may need to be adjusted prior to this new construction, please contact the office of Mr. _____, Resident Engineer for the State Highway Department,_____, Texas. This office will give you the information concerning the proposed type of construction, grades, etc.

Yours very truly,

_____
County Judge
_____ County, Texas

TYPICAL SKETCH



Preservation of Survey MONUMENTS

Robert W. Knox, Acting Director
Department of Commerce
Coast and Geodetic Survey

Among the responsibilities of the U. S. Coast and Geodetic Survey, delegated to it by Congress, is the establishment of the basic horizontal and vertical control networks throughout the United States. In the State of Texas the Coast and Geodetic Survey has established about 8,000 triangulation stations and about 28,000 bench marks along 40,000 miles of level lines. Survey stations, which consist of circular brass disks about three and one-half inches in diameter, have been established in concrete posts, bridges, buildings, and other permanent structures to perpetuate these surveys. Accurate positions in terms of latitude and longitude or plane coordinates are available for the triangulation stations and elevations above sea level are available for the bench marks.

The designs of the bronze disks used by the Coast and Geodetic Survey for marking these survey stations are illustrated in Figure 1 and a bench mark installed in a concrete post is shown in Figure 2. Triangulation and leveling index maps showing where these surveys have been established are available on request to the Director, U. S. Coast and Geodetic Survey, Department of Commerce, Washington 25, D. C.

Most of Texas has been covered by first- and second-order level lines spaced at about 25-mile intervals and about 20 per cent of the state has an additional development of what is called "area" leveling where lines are spaced about six miles apart. Bench marks are set at approximately one-mile intervals along the routes of the lines. Triangulation stations are established at eight-to-twelve-mile intervals along an arc of triangulation and at a spacing of about seven miles in area triangulation. These stations, within recent years, are also placed at four- or five-mile intervals along the main highways. The usual practice is to establish an underground mark as well as a surface mark at each triangulation station which could be used in case the surface mark is lost. Also, near each triangulation station, two reference marks are installed to aid in the recovery of the station mark and an azimuth mark is installed to enable one to orient his

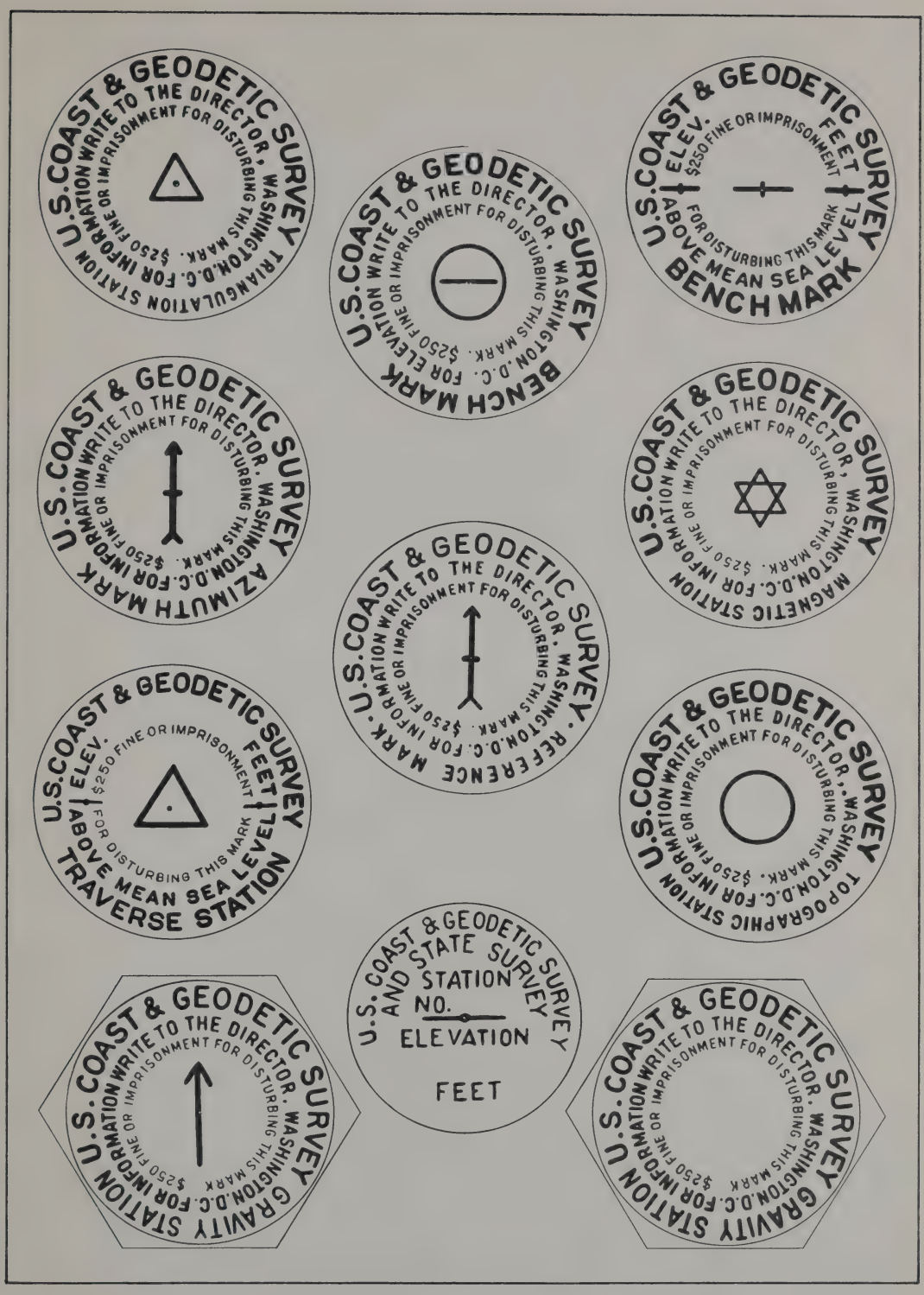

U.S. COAST & GEODETIC SURVEY
TRIANGULATION STATION
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
BENCH MARK
ELEV. FEET
ABOVE MEAN SEA LEVEL
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
BENCH MARK
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
AZIMUTH MARK
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
MAGNETIC STATION
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
REFERENCE MARK
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
TRAVERSE STATION
ABOVE MEAN SEA LEVEL ELEV. FEET
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
TOPOGRAPHIC STATION
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
AND STATE SURVEY
STATION
NO.
ELEVATION
FEET
U.S. COAST & GEODETIC SURVEY
GRAVITY STATION
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK
U.S. COAST & GEODETIC SURVEY
GRAVITY STATION
FOR INFORMATION WRITE TO THE DIRECTOR, WASHINGTON, D.C.
$250 FINE OR IMPRISONMENT FOR DISTURBING THIS MARK

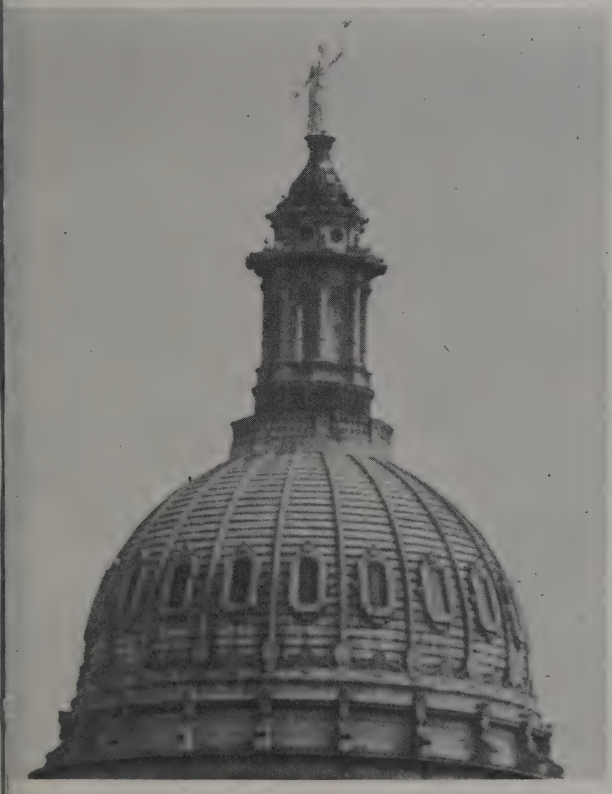
Figure 1

survey. At many of the survey stations, 4 x 4-inch witness posts have been established to aid in the recovery of the marks and to guard against their destruction.

The majority of these survey stations have been established along existing roads and will often need to be moved due to proposed construction. Because of the fact that these survey stations have been installed at considerable expense to the public and because of their wide use for many engineering purposes, they should be reset outside of construction limits rather than destroyed. Anyone knowing of a mark that needs relocating will perform a public service by writing to either the District Officer, U.S. Coast and Geodetic Survey, P.O. Box 2195, Fort Worth, Texas, or the Director, U.S. Coast and Geodetic Survey, Washington 25, D.C., giving the designation of the mark, which is the letters and figures stamped on the disk with dies. A rubbing of the disk is the best means of identification and can be prepared by placing a piece of light- or medium-weight paper over the disk and

Figure 2

Above is an elevation marker located on the landing outside the Highway Building in Austin. You've probably seen it numerous times without knowing what it was. Below is a picture of the statue on top of the capitol in Austin. Formerly, the star in the hand of Miss Liberty was used as the geographic position marker, but a marker is now established in the center of the base of the statue.



then rubbing over the paper with a pencil so as to show all of the data on the disk. A brief description of the location of the mark should also be furnished. Personnel are available at the Fort Worth office for relocating marks and often there are field parties operating in the state that can undertake relocation work. If federal personnel are not conveniently located, the cooperation of local engineers is solicited. Obviously it is to the best interest of all concerned that the marks be relocated rather than destroyed. Engineers of the Texas Highway Department have been very cooperative in this matter of the preservation of survey markers, but often marks are destroyed apparently because their existence was not known or possibly someone did not know the importance of their preservation. Anything that you are able to do toward the preservation of these survey marks will be greatly appreciated by the officials of the Coast and Geodetic Survey.

District Headquarters, Abilene.

THE DISTRICTS

District 8 began life as
Highway Department, being c
after the Department itself
quarters was in southeast T
in Wharton County. In 192
state, first moving to Brya
in 1924 to Eastland which is

Between 1924 and 1929
back and forth between Eas
until it was finally establish

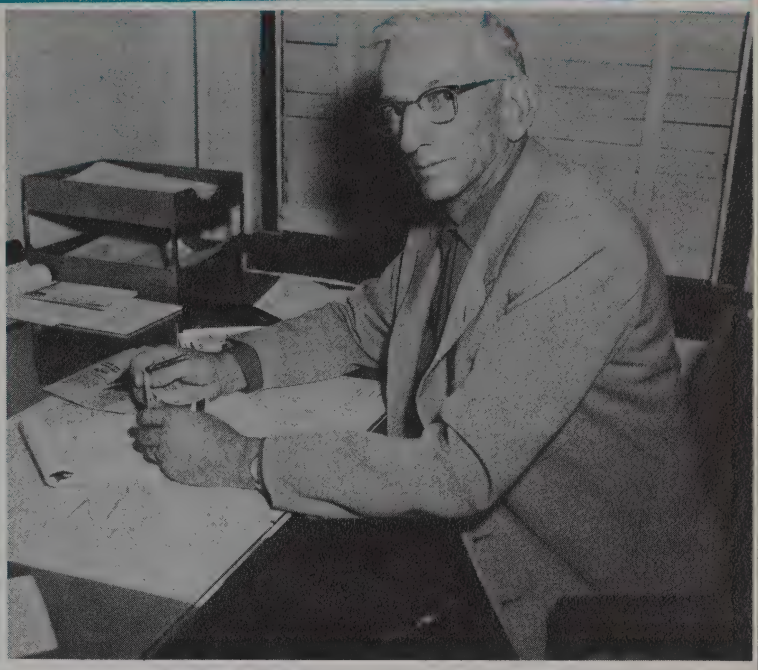
Today the 470 plus employ
2,200 miles of the state's
them, like U.S. 80 which c
west, major arteries of tr
rolling fertile plains on the
on the west, and from a pop
in Taylor County to 1.2 pers
In addition to cattle raisin
District 8's counties are so c
that they list patronage fro
their major sources of inco

J.C. Roberts, District Engineer, right, and W.O. Crawford, District Construction Engineer, go over a location of a proposed farm-to-market road.

DISTI

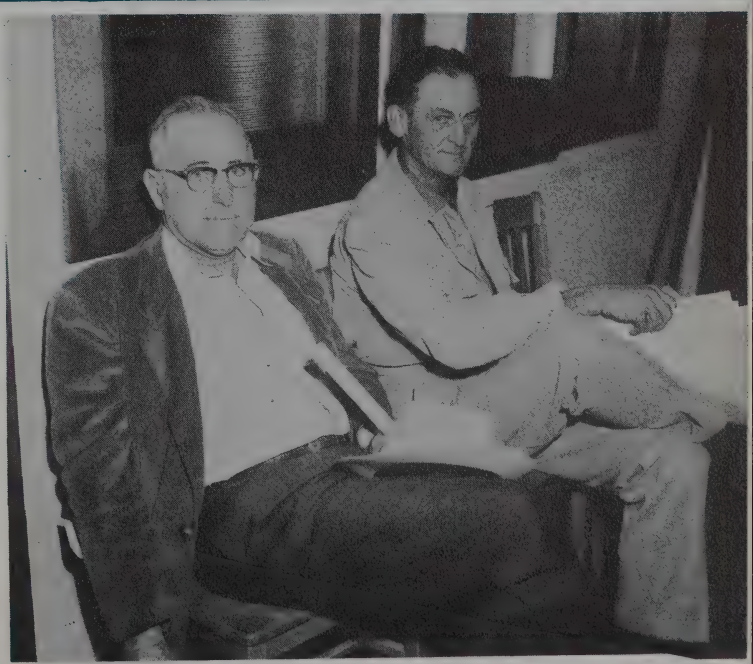
PASS IN REVIEW

ne of the first divisions in the anized in 1919 just two years s formed. Its original head- as with offices at Eagle Lake it began to migrate over the then in 1922 to Houston, and w in District 23.
e headquarters was shuttled nd and Abilene several times permanently at Abilene.
s of District 8 have more than ghways to care for, many of sses the District from east to ic. The area ranges from t to the edge of the Cap Rock ation of 69.4 per square mile s per square mile in Borden. oil, and farming, many of endent on its highway system highway commerce as one of .



George J. Smith, Assistant District Engineer and Texas Highways reporter, studying a drainage complaint.

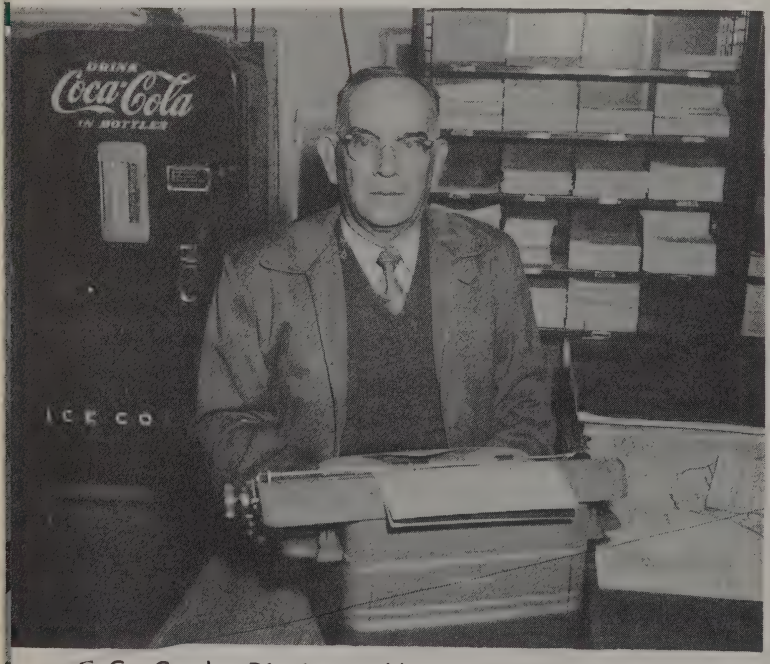
ICT 8



Waiting for conference with District Engineer are E.L. Harris and R.W. Domann, Senior Resident Engineers at Abilene.

Studying U.S. 83 freeway plans are Donel P. Smith, Senior Draftsman, James R. Johnson, Designing Engineer, W.E. Horton, Senior Draftsman, and C.C. Reed, Designing Engineer.

Mrs. Nelva Owens, District Offic



C.C. Crook, District Bookkeeper, fills out a truck permit form.

Checking files of accounts payabl
District Office Clerks.

lerk, speeds a teletype on its way.

Looking over a bridge design are Walter Plumlee, Engineering Assistant, Jack Taylor, Senior Inspector, and C.R. Swart and Ross Clark, Senior Engineering Assistants.

re Jackie Morue and Faye Huey,

Working on front end loader are Milton Antilley, Herbert Bush, and W. D. Walden, Skilled Laborers, and R.E. Hall, Shop Foreman.

Preparing center stripe machine for operation on military access road to Abilene air force base are James Adams, Semi-skilled Laborer, Royce Sanders, Turner Simpson, and L.Z. Harp, Skilled Laborers, John Kindley, Semi-skilled Laborer, and T.R. Smith, Skilled Laborer.

Going over cross sections are T.H. Upton, Junior Instrumentman, and S.T. Winkler and W.R. Walker, Rodmen.

R.G. Hackney and A.E. Wright, Skilled Laborers, and J.L. Tollett, Semi-skilled Laborer, warm up before beginning work in the District shops.

Short Course

The annual Highway Short Course at A & M College is scheduled for April 4-6.

The meeting of District Engineers, Division Heads, and Engineer-Manager will be held at 10:30 a.m., Tuesday, April 3, at Memorial Center, with the Short Course program beginning April 4.

A general assembly with general topics is to be held Wednesday morning and technical and committee sessions are scheduled for Wednesday afternoon and for the last two days, April 5 and 6.

Papers presented at the Short Course this year will be published in a special Short Course Issue, not as a regular monthly issue of TEXAS HIGHWAYS. Those on the mailing list for TEXAS HIGHWAYS will receive the Short Course Issue.

SPEAKERS, NOTE!!!

The editorial office (D-16) needs originals, not carbon copies, of the papers to be given at the Short Course. Papers will not be retyped, but photographed as sent in.

REMOVING

paint or aggregate pavement markings

Alton Vordenbaum, Senior Maintenance Superintendent
District 15

Broadway, from Josephine Street to Burr Road, in San Antonio is one of the most heavily traveled streets maintained by the state. In the early 1940's the Department applied raised stripe pavement marking for two lanes of traffic in each direction. Parking was provided for on each side. Due to the heavy movement, reflectorized paint stripe was applied on top of the raised stripe to prevent night accidents. This was before paint stripe was adopted state wide. It proved very effective.

Due to heavy left turn movements off Broadway during peak traffic, the city traffic engineer approached the Department in July, 1955, with a plan to revise the existing stripe to provide a painted center divider with left turn slots; this to require the removal of all the lane lines and part of the double center stripe. The lane lines were to be moved out to allow enough space in the center for a ten-foot divider.

The project was discussed by city and state officials and after due deliberation, they decided to proceed since it had considerable merit. The most difficult part of the work was to remove more than 33,000 lineal feet of hard traprock raised stripe. We had felt a need for a stripe-removing machine for a long time although none had been purchased due to the limited amount to be removed. However, there has been an increased demand for stripe removal on other jobs, so the machine can be used on other than this job. Bids were called for on the machine and awarded at a cost of $605.85. Delivery was made soon after and actual work started in September.

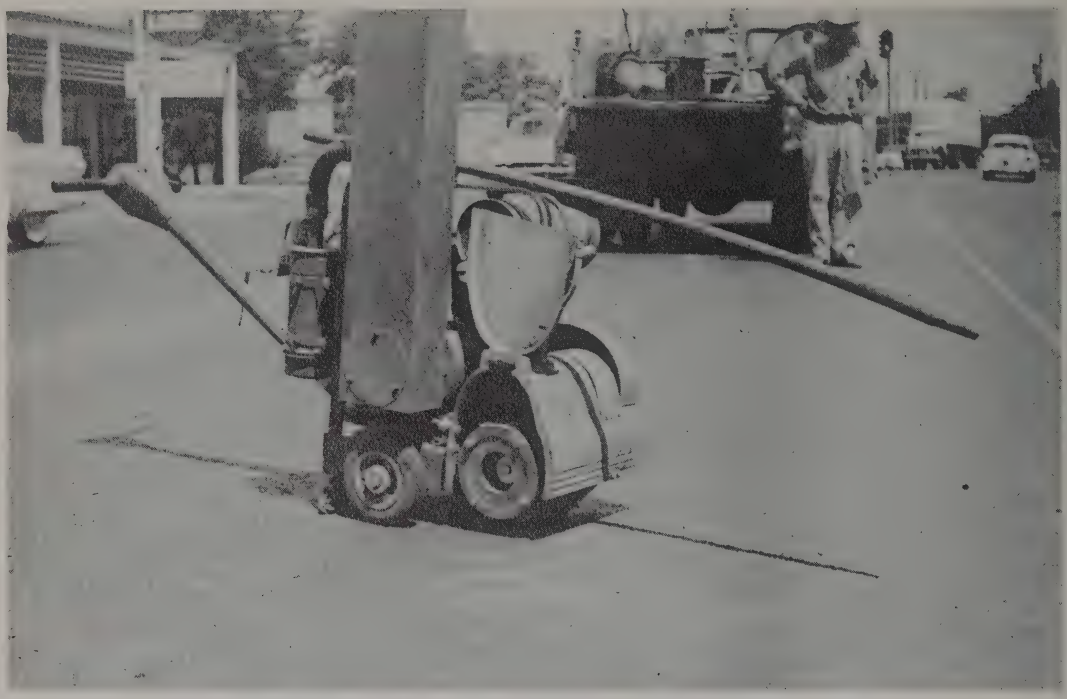
The city furnished one policeman to assist in handling traffic. Six workmen, one truck, and a pickup were necessary to handle the job. When the work of grinding the stripe off began, it was soon discovered that the cutters caused considerable dust. To overcome this, a small quantity of water was applied with a spray bucket just ahead of the machine. The water also helped keep the cutters cooler. When several hundred feet of line had been removed in this manner, M. D. L. Jordan, Senior Maintenance Foreman who maintains this street, suggested that a pear burner be used to soften the asphalt stripe immediately ahead of the grinder. This was done and it increased production of stripe removal approximately 75 per cent. The heat on the asphalt eliminated most of the dust so the application of water was discontinued. One set of cutters lasted for approximately 2,500 feet of line where it was heated. Without heat on the asphalt, the cutters lasted for about 1,500 feet.

Taking into consideration that the

Existing raised stripe lane line looking north on Broadway.

Close-up of same stripe.

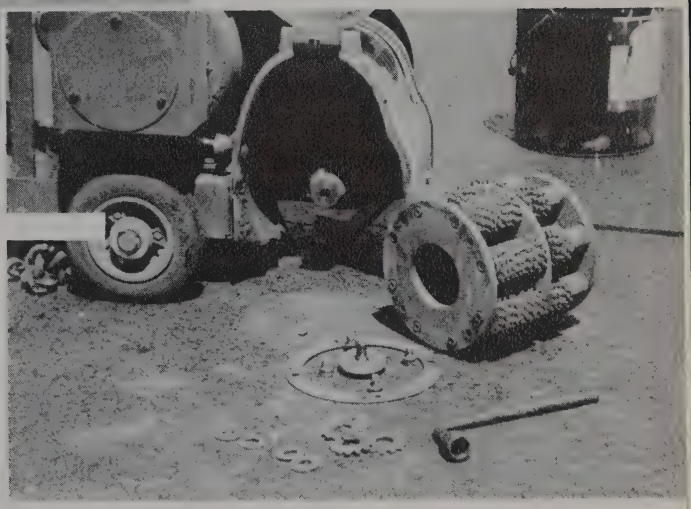
Removing stripe.



Stripe remover.

Lane line partially removed.

Pavement after stripe removal.



Stripe removing machine.

New pavement marking looking north on Broadway.

New marking, also looking north on Broadway.

men had never used this type of equipment before, and that the traffic conditions required extra precautions, the stripe removal proceeded with good progress. The work was completed within around fifteen days.

Total Lineal Feet Removed		33,776
Unit Cost Per Foot		$.0366
Labor	$	792.32
Equipmental Rental		27.18
Warehouse Stock		416.79
		$1,236.29

Cost of placing double center lines, lane lines, and painted ten-foot center divider with hash marks and left-turn slots:

Labor	$	731.25
Equipmental Rental		189.49
Materials		603.12
		$1,521.86

Total cost of stripe removed and placing new pavement markings was $2,758.15.

Since this work was performed, a study has definitely shown that the revised pavement marking is handling the traffic as had been hoped for—to provide for left turns without retarding the through traffic. After the traffic began using the pavement marking, the city added large white arrows on the surface indicating straight through and left turns. These are very effective.

Much credit for the project should be given to Stewart Fischer, the city traffic engineer who designed it and provided a set of plans and was helpful during the execution of the work. We also want to praise the efforts of the maintenance men who performed the work efficiently under heavy traffic without an accident of any kind.

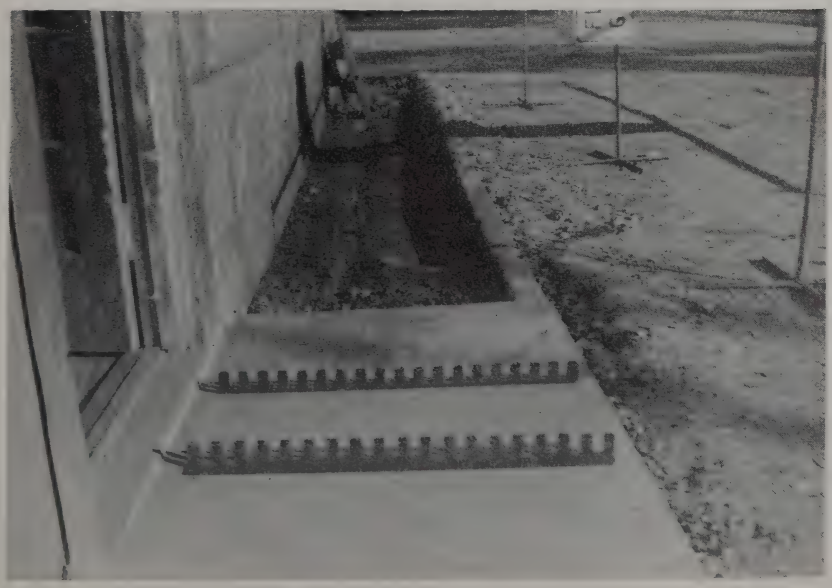
The machine performed very satisfactorily under the continuous grind of removing the hard traprock stripe. It showed no bad effects from this tough job. Fourteen hundred cutters were used on the entire job at a cost of 15 cents each. Twenty-eight cutters were required for a set on the eight-inch drum although they may be increased or decreased depending on the type of work that is to be done.

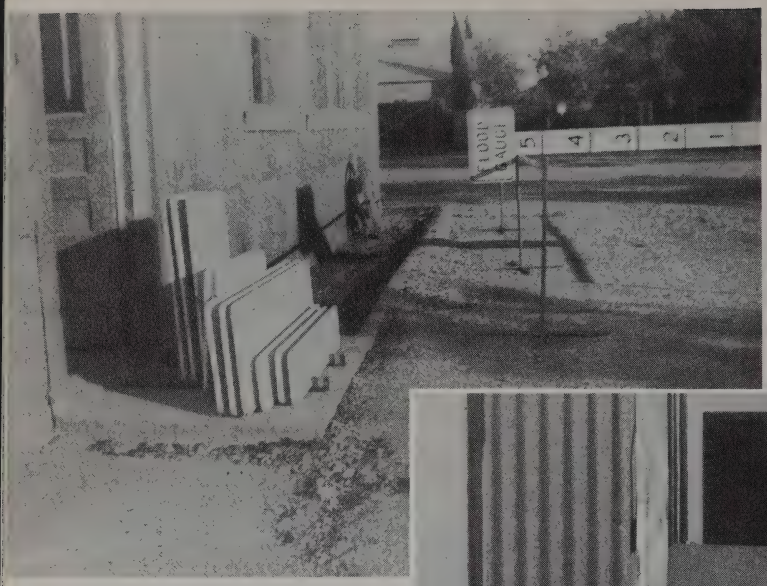
Frank Dixon, a representative of the manufacturer, was very helpful during the job with suggestions and advice concerning the line remover.

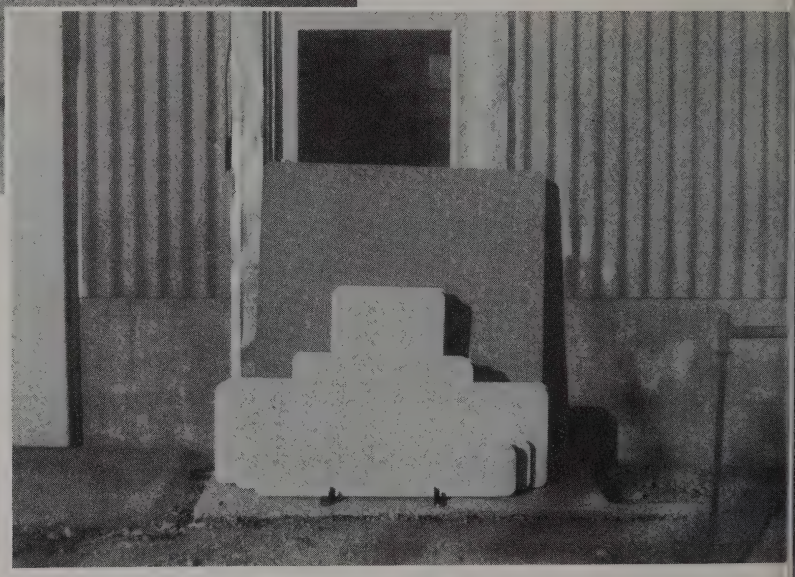
SIGN DRYING RACK

R.N. Jennings, District Maintenance Engineer
District 7

The sign shop personnel of District 7, consisting of Theodore O'Bryant, Vonner J. Voss, and Lilton Stringer, have devised a rack to hold wooden signs while they are drying which is both cheap and efficient. The racks, made of light-weight angle iron, are easily stored when not in use. The illustrating photographs show the simplicity of this rack.







• • •

Personnel Changes

H. L. Arno, Director of Personnel

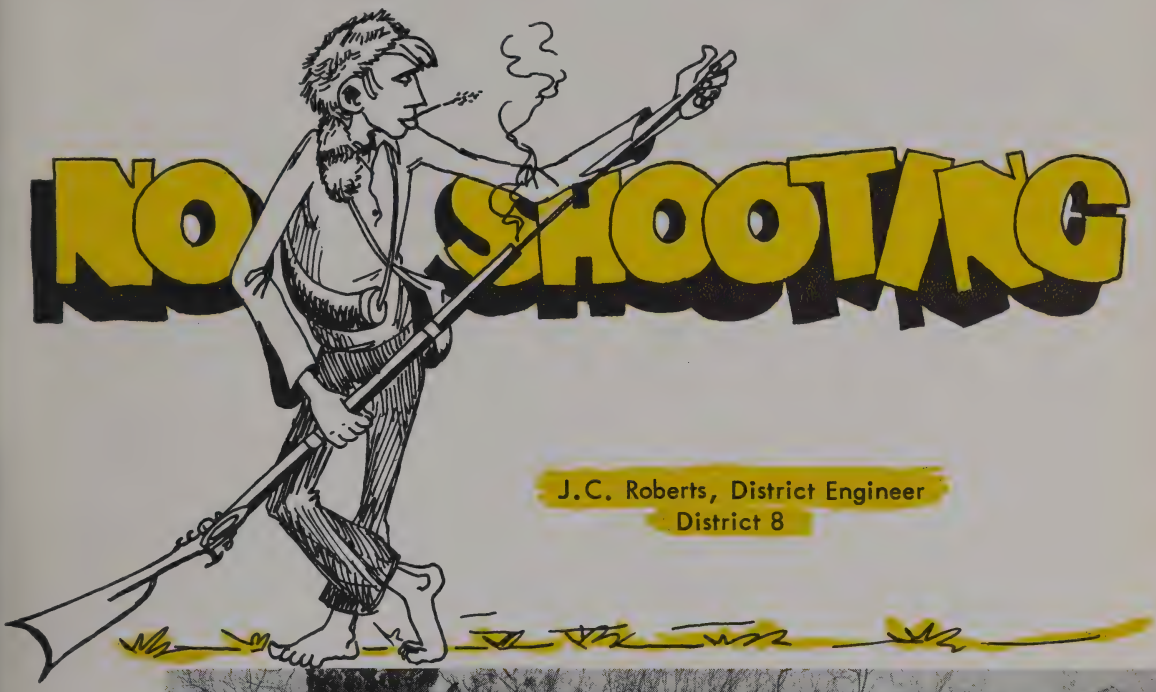
District 2

Expressway, Fort Worth: Robert W. Crook changed from Senior Resident Engineer to Senior Designing Engineer January 16, 1956.

Expressway, Fort Worth, to District Headquarters, Fort Worth: Floyd L. Smith, Supervising Designing Engineer, transferred as Senior Designing Engineer January 16, 1956.

Perhaps these signs should be labeled "Before" and "After." This is only one of the many examples of wanton destruction that occur throughout the state during the year.

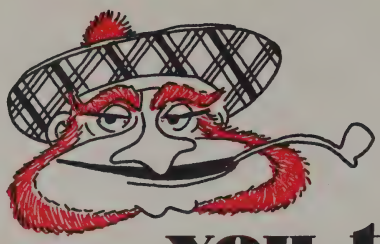
"No Shooting" sign is located in one of our roadside parks on U.S. 83 in Stonewall County on the banks of the Double Mountain Fork of the Brazos River.



J.C. Roberts, District Engineer
District 8

This picture was taken January 11, 1955. Shots are grouped very nicely within the "O."

This picture was taken January 10, 1956. Not only has the "O" been obliterated but riflemen have severed the sign above the "O." Perhaps we should eliminate the sign and erect a bulls-eye.



you take the high ROAD

The author of the old Scotch ballad lyrics, "Oh, ye'll tak' the high road and I'll tak' the low road and I'll be in Scotland afore ye," probably knew that the low road had less congestion. If he were around today, he'd be taking a bypass route to get there "afore ye."

The reason is clear enough; it's simply due to an epidemic of traffic strangulation that has attacked our cities within the past few years. Anyone who drives over our major highways will tell you that the most annoying thing to motorists nowadays is the city bottleneck. With the 4.1 million Texas vehicles plus the 3.7 million out-of-state vehicles which visit this state annually roaming the highways and streets it's no wonder we are plagued with traffic thrombosis.

Motor vehicle registrations have reached an all-time high within recent years. This has resulted in two things. First, traffic congestions and hazards in urban business districts have gotten so bad that all kinds of remedial measures are being applied including alternate routes for by-passing through traffic. Second, the highway construction program is now proceeding on an unprecedented scale. The answer to city bottlenecks is either the costly expressway-type development for large cities or a bypass route for the smaller communities. In some instances, it is physically possible for cities to obtain sufficient right of way through the town if they prefer to have the large volume of traffic streaming through the heart of their settlement. However, in most cases, this isn't possible and the only alternative for these cities to cure their traffic problem is an alternate route. These alternate routes are usually referred to as loops, belt highways, or bypasses but do not always mean what the term would imply. It simply means that an additional route has been provided for through traffic to avoid urban areas. As a rule, it also provides a connecting link and distributor for various streets and highways leading into the area. Very soon the alternate route and the old urban route have the area between them closed with substantial residential and business establishments. This type of development is to be desired over the long strip development that occurs when there is only one main highway through the center of town.

The Texas Highway Department, in routing tourists and local motorists

alike, has found that the selection of a route by a motorist is largely governed by traffic congestion in cities and towns, along with the condition of the highways.

If there are two routes of similar features and distance, the motorist will invariably select the route which offers the least amount of traffic congestion caused by city bottlenecks.

The old concept that a bypass route is injurious to the economy of the community is rapidly falling by the wayside. It has been proved time and again that where a bypass route has been built to adequately handle traffic in a particular community, revenues and expenditures brought about as a result of the highway improvement program always skyrocket. Modern highways open new horizons to business and industry alike, whether they are rural, urban, or bypass routes. Business activities generally increase due to improved traffic conditions. The loss of tourist trade in the downtown area is usually more than offset by an increase in local trade. Actually it has been found that motorists decide before reaching a town if they plan to buy gas, pop, or what have you. You can't squeeze an extra thin dime out of a motorist by compelling him to buck traffic through the heart of a city. Truck drivers don't normally shop in the business centers, and they do create a traffic hazard. The parking problem is either solved or greatly improved due to the reduced conflicts between parked vehicles and through traffic. Pedestrian safety and convenience are increased through reduced volume of heavy, fast, through traffic. This curbs vehicle accidents and deaths on city streets. The community saves money on street maintenance due to less wear and tear on city streets caused by heavy traffic since usually a great portion of these vehicles will use the bypass route. Fortunately, the State Highway Department no longer subscribes to the old theory that the highway stops at the city limits. The Department realized a long time ago that in-city routes were of equal importance with the rural portions of the road and the state now pays the construction cost of both.

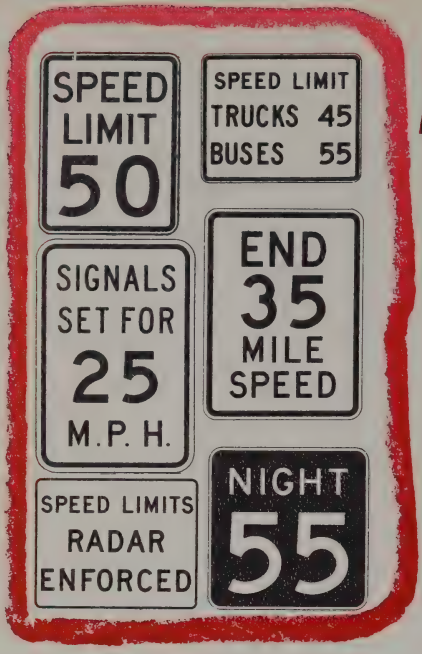
Other benefits derived from a well-planned bypass route are in the actual dollars and cents accruing to the municipality from increased property values along the new route and the increase in commercial developments along the route. These more than offset the cost of the right of way.

In this land, there are many cities today suffering from traffic strangulation and unless they are in a position and have the foresight to act, a great number of these communities will eventually become critically ill from the standpoint of progress and economy.

● ● ●

Capsule Statistics for Busy Executives . . .

Texans are taking to the highways more and more, these figures indicate: In 1954, a total of 95 million miles were traveled daily as compared with an average of 37 million miles driven daily in 1940. A total of 1.8 million vehicles were registered in the state in 1940, against 3.8 million in 1954.


SPEED LIMIT 50
SPEED LIMIT TRUCKS 45 BUSES 55
SIGNALS SET FOR 25 M.P. H.
END 35 MILE SPEED
SPEED LIMITS RADAR ENFORCED
NIGHT 55

MUST WE HAVE FAKE TRAFFIC LAWS?

By Don Wharton

Let's do away with the dangerous hazards of ridiculous, unenforceable regulations which make lawbreakers of most drivers

THE CURSE of American highways today is the unenforced traffic law, the bogus speed limit. From coast to coast, motorists are confronted with traffic regulations so unreasonable and unrealistic that police don't even *try* to enforce them.

On Long Island's four-lane divided, limited-access parkways, for example, huge signs warn drivers that the speed limit is 40 miles per hour. But, except when there's a traffic jam, most cars roll along at 45, 50 and more. On stretches of Maryland highways where speed-limit signs say 50 m.p.h., motorists see state troopers manning radar cars—but few drivers are fined unless they're doing 60 or more. If it's a divided highway with 55-m.p.h. signs, a driver is likely to be allowed up to 65.

Wilshire Boulevard in Los Angeles is marked with two signs: one tells motorists that the speed limit is 25 m.p.h.; the other says that the signal lights are set for 30 m.p.h. A counterpart of this absurdity can be observed any weekday in Washington, D.C., a couple of blocks from the White House: cars rolling along at 35 in a 25-m.p.h. zone, with a traffic cop vigorously urging them to move faster.

Highway studies have proved again and again that unreasonable and unenforced regulations cause motorists to lose respect for *all* traffic laws. In Champaign, Ill., several years ago, engineers studied car speeds on two main arteries. The streets had 25-m.p.h. signs but the police had been giving motorists a leeway of ten miles an hour or more. For weeks the engineers timed the traffic with the original signs, then with signs changed to 35 m.p.h., then with no signs at all, finally with 20-m.p.h. signs. The engineers' conclusions: "The posted limits were entirely ignored. The traffic

Copyright 1955 by The Reader's Digest Association, Inc.
Reprinted by Permission.

ran at 'natural' speeds irrespective of signs."

New York State, whose highway laws haven't been overhauled since 1929, has a 50-m.p.h. speed limit. It applies as much to a four-lane divided highway as to a two-lane curving road. Motorists therefore pay little attention to *any* speed signs. This fact was discovered in a five-year study by the state's Department of Public Works in coöperation with the U.S. Bureau of Public Roads. Observations were taken at 41 sites in various sections of the state. On four-lane highways last year 65 out of 100 drivers were exceeding the speed limit; on two-lane highways 42 out of 100. Thus hundreds of thousands of normally law-abiding citizens are turned into scofflaws.

Actually the average American motorist is driving more competently and carefully than ever before. Annually, only about three in 100 are involved in an accident of any type, and not even one driver in 1000 is involved in a fatal accident. In our horror at the *number* of traffic deaths, which has reached the awesome total of 36,000 annually, we are likely to ignore the fact that the death *rate* has consistently declined. There are simply more cars and drivers on the road. In 1934 we had one fatality for every six million vehicle-miles; last year it was one for every 16 million miles.

Perhaps a still greater reduction could be achieved by replacing present laws with reasonable ones which could be strictly enforced. For example, the state of Washington made a study of the effect of *raising* the speed limit from 50 to 60 m.p.h. on 225 miles of primary highways. Fatal accidents decreased 33 percent, all accidents 7 percent, and property damage 21 percent. And drivers obeyed the law!

In St. Paul some years ago on one street there was an average of 27 personal-injury accidents per year. The street was posted at 30 m.p.h., but a survey showed that 85 percent of the drivers did about 40 on it. Traffic engineers raised the limit to 40. Personal-injury accidents decreased to an average of four per year!

At Fort Worth, Texas, which won a national citation for reduction of traffic fatalities in 1954, traffic engineer T. R. Buckman uses what traffic engineers call the "85 percentile." That is, he checks speeds in a given zone, finds what speed 85 percent of the motorists are driving under, then sets the limit at approximately that figure. Thus Fort Worth has some 40-m.p.h. zones and some 50-m.p.h. zones. Buckman says: "Since raising our speed limits to 40 and 50 we have seen, in several instances, a decrease in excessive speed. This indicates that the average motorist will try to confine himself to the speed limit if he feels that it is a *justifiable* limit." Fort Worth also sets a good example by removing the 20-m.p.h. signs in school zones each summer.

Denver is another city which uses traffic-engineering studies to deter-

mine justifiable—hence enforceable—speed limits. It has streets posted down to 20, even to 15, for short stretches, but others in the city limits have been pushed up to 35, 45 and 50. Colorado now has a state law which specifies that no speed limit can be posted except after a thorough traffic-engineering study.

In contrast, in New York City it is illegal to drive faster than 35 even on four-lane and six-lane divided highways with controlled and limited access. Recently I put this fake speed limit to a test on a highway near the edge of the city by deliberately driving a steady 35. Soon cars were piling up behind me, drivers were honking, many wove around me. Mine was one of the few cars on this stretch being operated legally, yet it was the one that was causing trouble. What could be more ridiculous than a law which makes a legal driver a traffic hazard?

The four-lane divided highway around St. Paul and Minneapolis was built to speed traffic safely. Formerly the speed limit was 50, set after engineers with mechanical equipment found most motorists on this artery were driving around 50. Then came a scare campaign, hysterical cries of "Speed Kills," and the limit was arbitrarily lowered to 40. It's still 40, but some 85 percent of the motorists are still driving at 50, according to speed studies made by radar in unmarked cars. The only change is that 85 percent of the motorists have been turned into lawbreakers.

What is the effect of this erosion of respect for law? Perhaps it doesn't make reckless drivers or cop-haters out of the great majority of the drivers. But what about the borderline cases? And the children? They grow up watching their fathers and mothers drive 50 m.p.h. past 40-m.p.h. signs every 1000 feet, and I have an idea that such casual day-by-day experiences have a far greater impact on young minds than exhorting the child to "respect the law."

The nation is dotted with towns and villages which post a 20-m.p.h. limit on through highways—often for miles out from built-up sections—and then make no attempt, or only sporadic attempts, to enforce it. One Sunday last summer on a New York highway I passed through a village with a 20-mile limit. Most cars were moving along at 30 or 35, and the village cop stood there watching them roll by.

In Nebraska several years ago speed studies made of cars on U.S. 30 through towns and villages posted with 20- and 25-m.p.h. speed limits showed that motorists generally disregarded the signs. So 31 of the municipalities raised their limits by 5 to 20 miles an hour. Subsequent studies showed that motorists' speeds did not increase—and that accidents declined 34 percent!

When the limits are reasonable, motorists don't drive faster—and perhaps they even drive more competently. One safety engineer told me that driving 60 on an open high-

way with your mind concentrated on road and traffic is safer than driving 50 while continually watching in a rear-view mirror for speed cops.

Many traffic-control installations are as unwarranted as unrealistic speed limits. Drivers frequently encounter stop lights operating round-the-clock in sparsely traveled rural areas where blinkers would serve as well—or better—from midnight to dawn. Unnecessary stop lights are themselves the cause of accidents, particularly rear-end collisions. At an intersection on a Virginia highway near Fredericksburg accidents tripled when stop *signs* were replaced by stop *lights*.

Another irritant is the unjustified stop sign, which many cities and some states are now replacing with "yield right-of-way" signs. A driver approaching one must always yield to the other traffic, but he comes to a full stop only if proceeding would be hazardous. Portland, Ore., reports a 30 percent reduction in traffic accidents at 14 locations after installing "yield" signs.

The Federal Communications Commission has now licensed 305 police departments and 40 highway departments to use radar. But this new tool can be most effective if it is employed *first* by traffic engineers on scientific speed checks to determine what would be reasonable speed limits. *Then* let it be employed to get uniform enforcement. Certainly it should not be used by municipalities as a bluff, with the majority of drivers regularly exceeding the town's too-low speed limits. An FCC official reports seeing radar signs all over Ohio before the FCC had licensed any sets in that state.

What can average drivers do about all this? First, they can get it clearly in their minds that the highways belong to them and not to our various bureaucracies. They can begin flooding their local newspapers with specific examples of unreasonable traffic laws. They can get their civic clubs to sponsor revision programs which will produce regulations that can be enforced. And finally they can support efforts to get traffic problems in the hands of traffic engineers rather than politicians and policemen.

Every unreasonable law replaced by a reasonable one makes for uniform, consistent enforcement which in turn will make our highways safer. As Burton W. Marsh, director of the Traffic Engineering & Safety Department of the American Automobile Association, says: "Given reasonable laws and regulations and the proper atmosphere in which to drive, most motorists will drive at reasonable speeds and obey traffic regulations."

• • •

A total of 750 roadside parks with complete picnicking facilities are maintained for the traveling public by the Highway Department. In addition to these, there are 216 turnouts with no picnicking facilities but designed just to give travelers a place to pull off the highway to rest.

What's in a Name?

On State Highway 279 about 25 miles northwest of Brownwood, Brown County, is a small community that got its name partly because of poor handwriting. In 1879 the settlers requested a post office and met to select a name. After much squabbling, which usually accompanied the choosing of town names, one of the always-present wags suggested that it be called Cross Out because it was "across the country and out of the way (of usual travel)." The suggestion met with approval and was sent to the Post Office Department. There, the "O" was mistaken for a "C" and the name came back approved Cross Cut. The town now has a population of about 40 and three business establishments. The school building pictured here is no longer in use.

. . . I drove from San Antonio to San Angelo via Kerrville on February 2, leaving San Antonio at 4 P. M. Ran into icing conditions from Comfort to Menard but found that your Department had not only placed warning signs but had sanded all turns, grades, and bridges. I want to sincerely thank the State Highway Department for making this run safe. Thanks a million. . .

Harry M. Sliblar
San Angelo, Texas

. . . I am writing this letter to express my appreciation for an unexpected and very welcome service that was rendered to me by two of your employees on the highway north of Decatur on January 18.

As you know, this road was covered with ice and snow at the time and my car skidded off into the ditch. It was well after dark and no one stopped. After about 30 minutes a highway truck came over the hill from the south, hooked on to my car and pulled me out. The two young men then sanded the hill so I could get started. By careful and slow driving I managed to get into Fort Worth that night.

I think everyone knows the fine reputation of the Texas Highway Department, but I don't think that everyone knows that these boys put in their greatest work when the weather is the roughest. I am sincerely appreciative. . .

J. W. Coates
Amarillo, Texas

. . . We were impressed with the highways, the people, the weather, the cities, and everything. And we're moving down in 60 days. . .

Chevy Chase, Maryland

. . . We disliked having to drive through the main street of every little town we came to. . .

Mrs. J. P. Juenger
Lakeview, Arkansas

. . . You have Model T speed laws. Take a ride and look at your speedometer. You have wonderful highways. . .

M. M. Buchanan
Inglewood, California

. . . Your wayside tables are all on the wrong side. Why not some for people going west. . .

Earl Pearce
Miami, Florida

. . . Having recently driven down to Dallas from South Bend, Indiana; from Dallas on Highway 80 to El Paso (and on to Phoenix); back on 80 to Dallas—I feel qualified to compliment you on the condition of Texas highways! In fact, the Texas Highway Department was probably a major factor in converting me into a Texan. (Is such a thing possible?)

At any rate, not only do your state and your department deserve the highest compliments on your highways—but I have an extra commendation for one of your men.

The station outside of El Paso employs a Jack Dunn who was extremely courteous and thoughtful (even to the point of personally mailing a card for me). While I realize that these attributes are standard procedure for public employees, his courtesy and personality extended beyond what was required of him and I wanted to let you know.

I am normally not given to writing flowery speeches, so perhaps you will know that I was impressed enough (with the help of a few other Texas personalities) to stop being a tourist—and to settle in Dallas. . .

Joan Romine
Dallas, Texas